Paper No. 27

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte TOMIO MINOHOSHI
TOYOHIKO TAKEDA and
HIDEO NUMATA

_____

Appeal No. 95-1969
Application 08/024,913[1]

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ON BRIEF

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Before CALVERT, SOFOCLEOUS and PATE, ***Administrative Patent Judges***.

PATE, ***Administrative Patent Judge***.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 19 through 22. These are the only claims remaining in the application.

[1] Application for patent filed March 2, 1993. According to appellants, this application is a continuation of Application 07/731,880, filed July 18, 1991.

The claimed invention is directed to an apparatus for mounting at least two semiconductor integrated circuit chips on a lead frame. The invention is described in detail on pages 2 through 5 of the appellants' brief.

Claim 22, reproduced below, is further indicative of the appealed subject matter.

22. An apparatus for automatically mounting first and second semiconductor chips, each having a different outside dimension, on an island of a lead frame, said apparatus comprising:

first supply means for accommodating a plurality of lead frames each having an island;

conveying means for conveying said lead frames from said first supply means in a direction of conveyance, intermittently, and for a distance so that the island of each of said lead frames is stopped at a solder station and at a bonding station, said solder station and said bonding station being spaced by said distance in the direction of conveyance;

said conveying means including a tunnel cavity for maintaining a nonoxidizing atmosphere at and between said solder and bonding stations, said tunnel cavity including a guide member for guiding said lead frames, a cover plate, and a heater block;

second supply means for supplying first and second wire solders to each island at said solder station;

transfer means for transferring the first and second semiconductor chips to each island in that order while said each island is stopped at said bonding station, said transfer means including first and second vacuum chucks corresponding to said outside dimension of each of said first and second semiconductor chips to be mounted; and

third supply means for consecutively supplying said first and second semiconductor chips to said transfer means.

The references of record relied upon as evidence of obviousness are:

Doubek Jr. et al. (Doubek)	3,909,933	Oct. 7, 1975
Küehn et al. (Küehn)	4,511,421	Apr. 16, 1985
Baxter et al. (Baxter)	4,855,007	Aug. 8, 1989

The examiner has rejected claims 19 through 22 under 35 U.S.C. § 103 as unpatentable over Doubek in view of Küehn and Baxter. The details of the examiner's rejection are found on pages 3 through 6 of the examiner's answer.

According to appellants' brief, we are to consider the claims as standing or falling together.

OPINION

We have carefully reviewed the rejection on appeal in light of the arguments of the appellants and the examiner. As a result of this review, we have determined that the applied prior art does not establish a ***prima facie*** case of obviousness with respect to the claims on appeal. Therefore, the rejection on appeal is reversed.

We acknowledge the examiner's finding that Doubek discloses a method for transferring and bonding articles such as IC chips to substrate carriers such as a lead frame. It is important to

note that Doubek teaches bonding the IC chips to the lead frame with thermocompression bonding.

We further acknowledge that Kuehn discloses bonding dies to a lead frame or the like using epoxy or solder. Küehn emphasizes that the bonding is to take place in a work holder that is completely sealed from the outside environment. Küehn teaches that moisture in the outside environment has a deleterious effect on the connections being formed. Finally, Baxter discloses attaching components to a circuit board or a lead frame using a retractable paste solder dispenser.

When we analyze the teachings of the applied references, we first note that no reference teaches the claimed wire solder important to appellants' apparatus. While we agree with the examiner that wire solder is old in this art, we disagree that the paste solder dispenser of Baxter can be considered the same as appellants' claimed wire solder dispenser. Additionally, it is unclear to us how the teachings of Küehn and Doubek could be combined short of placing the entire Doubek apparatus in an environmentally sealed room. Certainly, the combined teachings would not have suggested a work holder shown by Küehn with access

ports that could be entered by Doubek's various vacuum chucks, inasmuch as Küehn emphasizes that the work holder environment must be completely sealed from the outside environment. If the apparatus of Doubek were placed in an environmentally sealed room, then no provision would need be made for appellants' claimed structure of a conveying means including a tunnel cavity, guide member, a cover plate, and a heater block.

For the foregoing reasons, it is our conclusion that the combined teaches of the applied prior art would not have established a ***prima facie*** case of obviousness with respect to the subject matter of the claims on appeal. Accordingly, we are constrained to reverse the rejection.

REVERSED

IAN A. CALVERT Administrative Patent Judge	)	
MICHAEL SOFOCLEOUS Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
WILLIAM F. PATE, III Administrative Patent Judge	)	

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